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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,140	12/23/2005	Yoshifumi Adachi	12480-000155/US	5533

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EXAMINER	
REDDY, KARUNA P	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
09/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,140	ADACHI ET AL.	
	Examiner	Art Unit	
	KARUNA P. REDDY	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/15/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-21 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10, 12-21 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to amendment filed 7/15/2008. Claims 11 and 22 are cancelled. Accordingly, claims 1-10, 12-21 and 23 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-4, 7-10, 12-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al (WO 00/53644).

   The rejection is adequately set forth in paragraph 3 of office action mailed 4/15/2008 and is incorporated here by reference.

4. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al (WO 00/53644) and Hatsuda et al (US 6, 562, 879 B1).

   The rejection is adequately set forth in paragraph 4 of office action mailed 4/15/2008 and is incorporated here by reference.

Response to Arguments

5. Applicant's arguments filed 7/15/2008 with respect to prior art rejections in paragraphs 3-4 of office action mailed 4/15/2008 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) where the weight average particle diameter is less than 300 microns, the moisture absorption blocking ratio is higher at the time of absorption; (B) where the logarithmic standard deviation exceeds 0.45, the particle size distribution becomes too broad and it is difficult to obtain the desired moisture absorption blocking property; (C) where the water-soluble component is more than 35 wt%, water-soluble component elutes from the water absorbent resin at the time of water absorption, so that the water-soluble component serves as a binder between particles. As a result, the gel blocking is likely to occur; (D) where the multivalent component extraction rate is too high, the multivalent metal component cannot be evenly mixed on the surface of the water absorbent resin and in cases where the extraction rate of the multivalent metal component is less than 5.0 wt%, the multivalent metal component permeates the water absorbent resin. Thus, it is impossible to improve the moisture absorption blocking property so that the improvement corresponds to the amount of the multivalent metal component; (E) Mertens provides a super absorbent polymer that exhibits not only a high absorbing ability under pressure, but also a high retaining ability (TB value) and favorable permeability (SFC value) both of which are characteristics generally opposite to the absorbing ability. Applicants submit that, if the water absorbing ability (e.g., TB value) and the permeability (SFC value) are relatively high, the absorption property causes also the water content in air to be absorbed. Thus, the water absorbent resin particles clump in high humidity and moisture absorption blocking phenomenon occurs; (F) referring to tables 2 and 4-7 of the instant application, applicant's note that each of the products of examples 1 to 10 has a “moisture blocking

ratio a" that is substantially lower and exhibits a better moisture blocking property than the products of comparative examples 1 to 17. Example 1 of Mertens corresponds to comparative example 4 of the instant application. Comparative example 4 and other comparative examples demonstrate that some products exhibit high CRC and SFC. Thus, in examples 1 of Mertens and comparative example 4 of the instant application, the "moisture absorption blocking ratio a" is substantially high, and thus do not exhibit a moisture blocking property as taught by example embodiments; (G) applicants remind the examiner of MPEP 716.02(b), which states that presence of a property not possessed by the prior art is evidence of nonobviousness; (H) Hatsuda fails to even recognize a problem with the moisture absorption blocking property of water-absorbent resins. Therefore, Applicants submit that Hatsuda fails to cure the deficiencies of Mertens with respect to independent claim 1; (I) examiner alleges that it is possible to define the concentration of the multivalent metal component of claim 7 by changing the amount of water in example 1 of Mertens from "2.5 g with respect to 100 g of the polymer product" to "1.0 g with respect to 100 g of the polymer product." However, Mertens is silent about the "moisture absorption blocking property" of the absorbent polymer. Further, Mertens does not explicitly teach, or suggest, a preferred concentration for the multivalent metal component. Thus, the concentration of the multivalent metal component can arbitrarily be set from 1 wt% to 100 wt% depending on the amount of water and polyol used; (J) the rejection states that "with respect to (B) and (E), attention is drawn to instant specification (paragraph bridging pages 59-60) wherein it is noted that mixing the particulate water absorbent resin, the solution of multivalent metal component and organic surface crosslinking agent is not particularly limited." Action, p. 9-10. However, Applicants direct the Examiner's attention to "Embodiment I" of

the instant application, in particular page 32, lines 6-8; (K) Applicants would like to point out to the Examiner that nothing in column 3, lines 54-60 of Mertens suggests that the particulate absorber resin is cross-linked prior (emphasis added by applicant) to adding the aqueous solution of a polyol; (L) Mertens teaches that the particulate water absorbent resin is coated "in the presence of cation of the salt component." Mertens does not teach, or suggest, that "the multivalent metal component aqueous solution is added to the surface cross-linked water absorbent resin" as recited in independent claim 7; and (M) comparative example 13 of Mertens uses a secondary surface-crosslinked polyacrylate. Comparing comparative example 13 of Mertens and example 1 of Mertens, applicants note that the concentration of multivalent metal example 1 is lower than that in comparative example 13. Thus, Mertens teaches away from a concentration of the aqueous multivalent metal compound (B) in the solution is 0.40 or more with respect to a saturated concentration of the aqueous multivalent metal compound (B) in the solution.

With respect to (A) and (B), applicant's attention is drawn to data from tables 1 and 2 of instant applicant which is included below for convenience.

	LSD (σζ)	D50 (μm)	Moisture absorption blocking ratio
Referential example 1	0.43	394.0	100
Referential example 2	0.51	383.0	100
Referential example 3	0.38	266.00	100
Referential example 4	0.36	322.0	90
Referential example 5	0.23	514.00	100
Example 1	0.34	443	0

Example 2	0.36	436	0
Comparative example 1	0.37	437	35
Comparative example 2	0.43	399	90
Comparative example 5	0.4	287	50

As can be seen from the data above there does not appear to be a correlation between either weight average particle diameter or logarithmic standard deviation, and moisture absorption blocking ratio. Specifically, applicant's attention is drawn to referential examples 1, 4 and comparative examples 1-2, where LSD (logarithmic standard deviation) and weight average particle diameter (D50) are within the claimed range and do not exhibit the desired low moisture absorption blocking ratio.

With respect to (C), applicant's attention is drawn to paragraph 3, page 3 of office action mailed 4/15/2008, where it is stated that Mertens et al disclose 0 to 30 wt% of a water-soluble polymer i.e. amount of water-soluble component is less than 35% and meets the claim limitation.

With respect to (D), given that the water absorbent resin composition of Mertens et al is prepared by a substantially similar process and contains substantially similar components, it is the examiner's position that the water absorbent resin composition of Mertens et al exhibits the claimed extraction rate for multivalent metal component.

With respect to (E), it is noted that there is no data to support applicant's arguments and court held that arguments of counsel cannot take the place of factually supported objective evidence. See In re Huang, 100 F.3d 135, 139-40, 40 USPQ2d 1685, 1689 (Fed. Cir. 1996); In re De Blauwe, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984).

With respect to (F), firstly, comparative example 4 of instant application is not the same as example 1 of Mertens et al as alleged by the applicant.

	Mertens example 1	Comparative example 4
Water absorbent resin	100 g	100 g
propylene glycol	0.5 g	
ethylene glycol diglycidyl ether	0.03 g	
1,4-butanediol	0.3 g	
Ethylene glycol		1.0 g
water	3.0 g	2.5 g
$Al_2(SO_4)_3.14\ H_2O$	6.7 g of 40.9%	0.5 g

As can be seen from the data above, comparative example 4 of instant application is not the same as example 1 of Mertens. Specifically, amount of metal salt used in comparative example 4 of instant application is quite different from that in example 1 of Mertens. Secondly, contrary to applicant's allegation, no SFC and CRC data are provided for comparative example 4 of instant application.

With respect to (G), given that the water absorbent resin composition of Mertens et al is prepared by a substantially similar process and contains similar components, it is the examiner's position that water absorbent resin composition of Mertens et al exhibits the desired moisture absorption blocking property. As stated in paragraph 3 of office action mailed 4/15/2008, since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

With respect to (H), it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Hatsuda is only used for its teaching of the weight ratio of water absorbent resin powder and hydrophilic fiber in a water absorbent structure.

With respect to (I), applicant's attention is drawn to column 6, lines 50-65, wherein it is stated that preferred solvent for the polyols as secondary crosslinking agent and for the salt component is water, which is preferably used in an amount of 1.0 to 4 wt% relative to polymer product and that the concentration of each secondary crosslinker component is preferably from 10 to 40 wt%. Furthermore, Mertens et al disclose 0.01 to 5 wt%, relative to the polymer product, of at least one polyol as a surface secondary crosslinking agent and 0.001 to 1.0 wt%, relative to polymer product, of a cation in the form of an aqueous solution. Thus, applicant's allegation that Mertens does not teach a preferred concentration for the multivalent metal component is without merit. As to the moisture absorption blocking property, given that the water absorbent resin composition of Mertens et al is prepared by a substantially similar process and contains substantially similar components, it is the examiner's position that water absorbent resin composition of Mertens et al exhibits the desired moisture absorption blocking property.

With respect to (J), section referred to by applicant relates to the amount of water or organic solvent used with respect to 100 parts by weight of water absorbent resin and does not have any bearing on the process steps of claim 7. The amount of water or

organic solvent used in Mertens et al overlaps substantially with the amount in instant application and discussed in section "I" above.

With respect to (K), applicant's attention is drawn to bridging paragraph of column 4-5, where in Mertens states that water absorbing polymer product to be surface crosslinked is obtained by polymerizing monomer having acid groups preferably in the presence of crosslinkers.

With respect to (L), applicant's attention is drawn to paragraph 3, pages 3-6 of office action mailed 4/15/2008, where the differences in the process steps of Mertens and present invention are addressed. To reiterate, while present process claims are directed to addition of polyol followed by aqueous solution of multivalent metal component to particulate water absorbent resin and Mertens et al teach adding a mixture of organic crosslinking agent and multivalent metal compound solution, attention is drawn to In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946), wherein court held that selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results.

With respect to (M), applicant's attention is drawn to paragraph 6, sections C, D and F, where examiner has explained with examples of how Mertens et al teach the concentrations of multivalent metal component of present claims. To reiterate, while the concentration of multivalent metal component is 0.26 in example 1 of Mertens, a prior art reference is used for all it discloses. Given that, it is noted that amount of water is used from 1.0 to 4.0 wt%. Replacing 2.5 g of water in example 1 with 1.0 g of water will give a concentration of multivalent metal compound / component of ≥ 0.40 with respect to a saturated concentration of the aqueous multivalent metal compound, and a concentration of the multivalent metal component contained in mixed solution including

the solution of aqueous multivalent metal compound and the organic surface cross-linking agent of at least 1.8 ([X] = (S/T) * 100 = (0.5/(1.0 + 1.0 + 0.5)) * 100 = 20.0 wt%; and [Y] = [X] * (MW_{Al} * 2/$MW_{Al2(SO4)3}$) = 20.0 * (27 * 2/594.37) = 1.82.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. P. R./
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796